DNV·GL

Certificate No:
TAP0000142

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Pressure Gauge Connection

with type designation(s)
RCh 100, RChG 100; RChg 100, RChgG 100, RCh 160, RChG 160; RChg 160, RChgG 160

Issued to
Manotherm Beierfeld GmbH Druck- und Temperaturmeßtechnik
Grünhain-Beierfeld, Germany

is found to comply with
DNV GL class guideline DNVGL-CG-0339 – Environmental test specification for electrical, electronic and programmable equipment and systems

Application :

Pressure gauges according to EN 837-1

Type:	Temperature range:	Max. working press.:	Sizes:
RCh 100, RChG 100; RChg 100, RChgG 100	B; D	0,6 to 2500 bar	100 mm (4"); 160 mm (6")
RCh 160, RChG 160; RChg 160, RChgG 160	B; D	0,6 to 2500 bar	100 mm (4"); 160 mm (6")

Issued at **Hamburg** on **2017-10-18**
This Certificate is valid until **2022-10-17**.
DNV GL local station: **Essen**

Approval Engineer: **Guido Friederich**

for **DNV GL**

Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Examination Certificate and not to the approval of equipment/systems installed.

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Job Id: **262.1-025993-1**
Certificate No: **TAP0000142**

Product description

Bourdon tube pressure gauges. Accuracy and technical conformity according to EN 837-1.

Types and additional technical data, range of application and test standard, based on DNV GL Class Guideline, DNVGL-CG-0339 " Environmental test specification for electrical, electronic and programmable equipment and systems".

Model		Temperature Class	Vibration Class	NACE MR0175	NACE MR0103	Pressure ranges [bar]	Tube type form	Tube pressure [bar]	Material
RCh	100-1	D	A	-	-	0 to 0,6	C-form	≤ 40	Bronze, brazed
RChg	100-1	D	A	-	-	0 to 1000	Spiral form	≥ 60	316 SS, silver soldered
RChG	100-1	B	B	-	-				
RChgG	100-1	B	B	-	-				
RCh	160-1	D	A	-	-				
RChg	160-1	D	A	-	-				
RChG	160-1	B	B	-	-				
RChgG	160-1	B	B	-	-				
RCh	100-3	D	A	✓	-	0 to 0,6	C-form	≤40	316 SS, argon arc welded
RChg	100-3	D	A	✓	-	0 to 1000	Spiral form	≥60 <1000	316 SS, argon arc welded
RChG	100-3	B	B	✓	-	0 to 2500	Spiral form	≥1000 ≤2500	NiSpanC, argon arc welded
RChgG	100-3	B	B	✓	-				
RChgG	100-3v	B	B	✓	-				
RCh	160-3	D	A	✓	-				
RChg	160-3	D	A	✓	-				
RChG	160-3	B	B	✓	-				
RChgG	160-3	B	B	✓	-				
RChgG	160-3v	B	B	✓	-				
RCh	100-6	D	A	✓	✓	0 to	C-form	≤ 40	Monel, argon arc welded
RChg	100-6	D	A	✓	✓	0,6	Spiral form	≥ 60	Monel, argon arc welded
RChG	100-6	B	B	✓	✓	0 to 600			
RChgG	100-6	B	B	✓	✓				
RCh	160-6	D	A	✓	✓				
RChg	160-6	D	A	✓	✓				
RChG	160-6	B	B	✓	✓				
RChgG	160-6	B	B	✓	✓				

Technical Data

Diameters	100mm (4") ; 160 mm (6")
Accuracy	± 1%
Connections	¼" or ½" BSP; ¼" or ½" NPT; M 20 x1,5; HP-Connection M16x1,5 and 9/16"-18 UNF

Application/Limitation

The a.m. manometers are approved and may be used in piping systems on ships, offshore units and other structures classed by DNV GL. All gauges without electrical accessories are according ATEX directive.
Remark:

The selection of the pressure gauges for the corresponding service conditions (Pressure, temperature, type of flowing media) as well as the proper assembly and installation is to be carried out in accordance with the instructions of the manufacturer.

Type Examination documentation

- Data sheet nos.: 1201-08/17 ; 1202-08/17
- Reports of tests carried out

Tests carried out

- Humidity test (according to DNVGL-CG-0339)
- Vibration test (according to DNVGL-CG-0339)
- IP-Test according to IEC 60529
- Pressure measurement in accordance with DIN EN 837-1
- NACE MR0175 / TM 0177 / EN ISO 15156-3

Marking of product

For traceability to this type examination the products are to be marked in accordance with EN 837-1:

- Individual serial number
- Manufacturer's trademark
- Pressure range
- Pressure unit
- Wetted material
- Accuracy class

Certificate Retention Survey

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out.

The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered. The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

END OF CERTIFICATE